UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Mr. Stephen E. Hooper
Chemetall Foote Corporation
348 Holiday Inn Drive
Kings Mountain, NC 28086

January 03, 2002

Mr. Ronald G. Fender
Frazer Exton Development, L.P.
855 Springdale Drive
Exton, PA 19341

RE: Bromate sampling and results

Dear Messrs. Hooper and Fender:

EPA is sending this letter to both Chemetall Foote Corporation, as the successor company to the Cyprus Foote Mineral Co., and Frazer Exton Development, L.P., as the new owner of the property as well as the party reported to have assumed the remedial responsibility for this Site.

At EPA's request, FED and ERM conducted a sampling event on December 4 and December 7, 2001 with the goal of determining if the Foote Site was a source of bromate contamination. FED's rapid response to the request is appreciated. EPA had hoped that this limited sampling event could be used as a screen to confirm or eliminate the Site as the source of the bromate reported in Philadelphia Suburban Water Company's Chester Valley Well. A representative of PSWC was in attendance and took splits of the samples for analysis in their in-house lab.

ERM's report for that event, including sample results and interpretation was submitted to EPA in a letter dated 24 December 2001. ERM's interpretation of the collected groundwater samples utilizes a reasonable approach, except that the samples themselves present too much uncertainty to serve as a reliable basis. EPA feels that the samples do not reasonably represent the groundwater conditions for the following reasons:

Although wells ERM 2D and MW 25 were fully purged and sampled, and split samples from those wells showed results in approximately the same range, the targeted Quarry well, MW 15 had no significant water. The alternate location, well 16, was pumped dry with little recharge. This might not be a issue except that in the quarry, the wells are screened in the waste, in a water bearing zone that has been shown to be a mounded water table. In light of the drought conditions prior to sampling, it is possible that the water that recharged the well bore and was taken for analysis, may not have been in contact with the true water table and indeed may only be representative of the limited recent rainwater that had percolated only through the immediate

area surrounding that well. Consider also that the split sample for this location analyzed by PSWC showed ND, and sample results from this location cannot be accepted.

The downgradient Residential Well is compromised; the sample was reported to be black with a strong, distinctively petroleum odor. Without additional information regarding potential reactions of bromate ion with organic material, and information regarding any possible interferences in the analysis engendered by high organic concentrations, the results from this location cannot be accepted. PSWC did not analyze the split of this sample; they reported that there was floating product in the sample and did not want to jeopardize their analytical equipment.

Subsequently the results do not conclusively point to Foote as the source, nor do they conclusively eliminate the Site. However the results do suggest a bromate connection to the Foote site that must be investigated further. Plans for remediation of the Site can not advance until this issue is resolved. Therefore, I am requesting that FED conduct another sampling ›und, but using different wells selected to avoid the unforeseen problems encountered in the ·st round. EPA's geologist will have recommendations for discussion prior to finalizing any ›mpling plan.

Sincerely,

James J. Feeney (3HS21)
Remedial Project Manager

CC: Andrew Thalheimer, ERM
Yvette Hamilton, EPA
Bruce Rundell, EPA
David Minsker, DEP

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SUBJECT: Hydrogeologic Review of April 19, 2002 Letter Concerning the Occurrence of Bromate Associated with the Foote Mineral NPL Site

DATE: May 13, 2002

FROM: Bruce Rundell, Senior Geologist
Technical Support Section (3HS41)

TO: James Feeney, RPM
Eastern Pa. Section (3HS22)

This memorandum has been reviewed to determine if a logical understanding of the source of bromate in and around the site is presented. The data presented in this document and the suggestions of alternate sources of bromate other than the site were found to be inadequate and unsupportable.

The consultant attempts to use the attenuation model developed for lithium to explain why the site is not the source of bromate. The lithium model was developed with many round of synoptic data that included many wells. Only two rounds of a limited number of wells have been collected and analyzed of bromate. The wells sampled in each round are not the same. The most important well for the model, the municipal well, is not included in either sampling event. No conclusions regarding the trend of bromate concentrations away from the site can be made.

The areal distribution of bromate does suggest that the site quarries are a source of bromate in the area. No Bromate was detected in the two up gradient wells; ERM 2D and RES-17. The two highest concentration of bromate documented in the area are in the south quarry (MW-10) or just downgradient of the south quarry (MW-1) . The concentration of bromate in these wells is nearly an order of magnitude greater than the other wells monitored. This data suggests that the south quarry is a source of bromate contamination.

The consultants suggest others sources of bromide in the area in contact with an unknown oxidizer may be the source of bromate in the area. The argument can not be justified because it lacks the most important component, a mechanism to drive bromide to bromate. EPA's limited research into bromate has found the most effective driving mechanism to be pH. Very alkaline conditions are found in the on site quarries with pHs around 12. This level of alkalinity could easily force the transformation of bromide to bromate. Again this information points to the south quarry being a source of bromate contamination.

The data collected to date supports the conclusion that the south quarry is a source of bromate contaminate. The data, however, doesn't fulfill the need to determine whether the proposed capping remedy will alleviate the bromate contamination. At least one round of synoptic bromate and lithium sampling is needed. This round needs to include the municipal well and or wells along the fault past the municipal well. This data set may be compared with the lithium model to determine the effectiveness of the remedy. It may also be useful to analyze for some of the other parameters that may affect bromate such and iron species, and nitrogen.

If you have concerning this site any questions feel free to contact me at (215) 814-3317.